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#### REFERENCES

- GARDNER, C. A., and H. W. BENNETTS, 1956. *The toxic plants of Western Australia*. Perth.
- HURST, EVELYN. 1942. *The poison plants of New South Wales*. Sydney.
- STORR, G. M., J. W. GREEN and D. M. CHURCHILL. 1959. The vegetation of Rottneest Island. *J. Roy. Soc. W. Aust.*, 42: 70-71.
- WEBB, L. J. 1948. Guide to the medicinal and poisonous plants of Queensland. *C.S.I.R. Bull.* 232. Melbourne.

## BREEDING OF BIRDS IN THE LOWER WONGONG VALLEY

By P. SLATER, Derby.

A number of recent papers have dealt with the breeding periods of birds in various parts of Western Australia: Robinson (*W.A. Nat.*, 4: 149), Carnaby (*W.A. Nat.*, 4: 187), Sedgwick (*W.A. Nat.*, 5: 46), Marshall and Serventy (*Emu*, 57: 99), Slater (*W.A. Nat.*, 7:35) and Lindgren (*W.A. Nat.* 7: 169). The present paper reports the situation in the foothills of the Darling Range between Armadale and Byford, as recorded by the writer in 1959.

The study area extended along the Wongong Valley for about two miles into the hills and for about four miles on to the coastal plain, confined to the immediate vicinity of the Wongong Brook. A number of distinct habitats can be recognised:—

### (A) In the Darling Range

- (1) Dense undergrowth immediately surrounding the brook. Typical birds: Red-eared Firetail, Spotted Scrub-Wren, New Holland Honeyeater, Red-winged Wren.
- (2) Wandoo, Marri and Jarrah forest on the slopes, underlain by a thick carpet of harsh xerophytes. Typical birds: Splendid Wren, Western Thornbill, Spinebill.

### (B) On the coastal plain

- (1) Pasture. Typical birds: Banded Plover, Pipit, White-faced Heron.
- (2) *Melaleuca* and bottlebrush swamp. Typical birds: Grey Teal, Brown Thornbill.
- (3) Open Marri forest. Typical birds: Yellow-tailed Thornbill, Twenty-eight, Magpie.

Although the area was frequently visited through the year, no breeding was recorded until July 23, continuing into spring and early summer. There were no outstanding deviations from the climatic normal, and the season may be regarded as a typical one.

Forty species of birds were found nesting, representing about half of the resident species. In the following table, each bird is placed in the order of the date on which it was first noted as breeding. The following abbreviations have been used: (B) building; (E) eggs; (Y) young. The vernacular names used are based on Servery & Whittell, *Birds of Western Australia* (2nd edn.), 1951, where the relevant scientific names may be found.

The writer wishes to acknowledge the assistance in the field given by his wife and Mr. M. K. Morcombe, of Armadale. Messrs. J. F. Orton and P. Kargotich kindly gave permission to enter their property in the Wongong Gorge.

#### NEST FREQUENCIES (in order of discovery of first nest)

- Welcome Swallow—July 23 (B); Aug. 1 (B); Sept. 1 (B, B, B).  
 White-faced Heron—July 25 (B); Aug. 25 (E, E, Y, Y, Y); Aug. 26 (Y).  
 Yellow-tailed Thornbill—July 25 (B); Aug. 26 (Y); Sept. 3 (Y); Oct. 4 (Y); Dec. 24 (Y).  
 Western Magpie—July 26 (B, B); Aug. 2 (E); Aug. 26 (Y); Aug. 27 (E); Sept. 19 (E, E, E).  
 Scarlet Robin—Aug. 2 (B—eggs on Aug. 9); Aug. 28 (Y); Sept. 2 (Y); Sept. 3 (Y); Oct. 1 (B); Oct. 24 (E, Y); Nov. 16 (Y).  
 Willy Wagtail—Aug. 23 (E).  
 Grey Fantail—Aug. 23 (E); Aug. 28 (E); Sept. 20 (B); Oct. 25 (E); Nov. 16 (Y); Dec. 24 (E, Y).  
 Magpie Lark—Aug. 24 (B); Nov. 7 (Y).  
 Kookaburra—Aug. 25 (?); Sept. 2 (E).  
 Raven—Aug. 25 (Y).  
 Black-faced Wood-Swallow—Aug. 28 (B); Sept. 6 (B); Nov. 26 (E).  
 Splendid Wren—Aug. 28 (B); Oct. 24 (B, Y); Oct. 31 (B, B); Nov. 16 (Y).  
 Yellow-throated Miner—Aug. 29 (Y); Sept. 11 (Y).  
 Tree-Martin—Sept. 1 (B, 30 pairs in the one tree).  
 Twenty-eight—Sept. 1 (E); Sept. 20 (E).  
 Grey Teal—Sept. 1 (E).  
 Australian Goshawk—Sept. 3 (?); Sept. 11 (?); Sept. 19 (B).  
 Red-eared Firetail—Sept. 4 (B); Oct. 25 (E); Nov. 16 (E, E).  
 Spinebill—Sept. 11 (Y); Oct. 20 (B); Oct. 25 (Pallid Cuckoo).  
 New Holland Honeyeater—Sept. 19 (B); Oct. 1 (Y).  
 Red-capped Parrot—Sept. 19 (Y).  
 Black-faced Cuckoo-Shrike—Sept. 29 (Y); Dec. 24 (Y).  
 Black-capped Sittella—Oct. 1 (Y); Dec. 24 (Y).  
 Dusky Wood-Swallow—Oct. 3 (Y).  
 Western Warbler—Oct. 3 (B); Oct. 24 (B).  
 Western Silveryeye—Oct. 3 (B, E); Oct. 4 (Y).  
 Brown Thornbill—Oct. 4 (Cuckoo); Oct. 24 (B); Oct. 25 (Cuckoo); Nov. 16 (?).  
 Bronze Cuckoo (sp.?)—Oct. 4 (Y); Oct. 25 (Y).  
 Western Thornbill—Oct. 4 (Y); Oct. 31 (Y).  
 Spotted Scrub-Wren—Oct. 4 (Y).  
 Little Eagle—Oct. 4 (E).  
 Spotted Diamond-bird—Oct. 4 (Y).  
 Brown Honeyeater—Oct. 24 (Y); Oct. 25 (E); Nov. 13 (E); Nov. 16 (Y).  
 Golden Whistler—Oct. 25 (E); Nov. 26 (E); Dec. 28 (E).  
 Pallid Cuckoo—Oct. 25 (Y); Dec. 28 (Y).  
 Rufous Whistler—Nov. 1 (Y); Nov. 16 (Y).  
 Rainbow-bird—Nov. 1 (B, B, B); Dec. 28 (Y, Y, Y, Y, Y).  
 Sacred Kingfisher—Nov. 26 (E, E); Nov. 30 (?); Dec. 16 (Y, Y).  
 Red Wattle-bird—Dec. 28 (Pallid Cuckoo).

#### GENERAL NOTES

It will be noted that breeding does not begin until the latter part of July. The main nesting months are August, September and

October, after which there is a falling off in breeding activity through November to December.

An interesting ecological relationship between the two Woodswallows, the Dusky (*Artamus cyanopterus*) and the Black-faced (*A. cinereus*) was observed in the Gorge. The hillslopes for about a half mile into the gorge have been cleared for pasture, and the Black-faced Wood-Swallow has penetrated into this area to breed. A hundred yards farther on, in the open Wandoo forest, the Dusky Wood-Swallow was found in numbers, a nest in a hollow tree being noted on October 3. Thus although nests of both species were found within one hundred yards, each species remained in its chosen habitat.

The Little Eagle has seldom been observed on the Swan coastal plain. A pair nested about two miles from the foothills near the Armadale-Fremantle road in a giant Marri, and has used the nest three times in four years, on the other occasion moving to a lower Marri a hundred yards away.

In the gorge itself the Red-eared Firetail has staged a remarkable comeback. In 1958, one nest was found, and only one party of birds was observed. In 1959, four nests were found and in 1960, about two dozen occupied nests were discovered. In 1961, the Gorge was closed to entry, so no observations were made.

## A VISIT TO THE SALT MARSH NORTH OF CARNARVON

By T. C. SCOTT, Crawley.

A striking geographical feature on maps of mid-western Australia is the large expanse of salt lake north of Sharks Bay and about 70 miles north of Carnarvon. The lake is approximately 90 miles long and 30 miles at the widest stretch. It appears that this area has not been visited often though it offers quite an interesting scope for the naturalist.

The lake is given the rather indefinite name of "Salt Lake" on most maps though locally it is known as the "Salt Marsh."

In November-December 1961 I was working around the Marsh for a period of five weeks and paid some attention to its natural history. Its most startling characteristic, on first view, is the brilliant, glistening white expanse of salt crystals. On my visit the lake was only partly filled with very saline water. I walked out about one mile, on a narrower part of the Marsh, through soft mud and salt crust and estimated the depth of water to be no more than 5 or 6 feet. The lake has no outlet to the sea. The local people claim that its level rises and falls with the tide on the adjoining coast, but during my stay I failed to notice any such movement.

The water was so highly saline that dead bushes which had been blown into the water were so heavily encrusted with salt they looked like icebergs. Branches lying on the edge were caked with as much